

CLAIMS

1. A device for installing an optical fiber in a connector, comprising:
an optical fiber cleaving mechanism;
a connector holding means; and
a fiber insertion mechanism;
arranged such that an optical fiber may be cleaved by the cleaving mechanism to produce an end of the fiber, and the end of the fiber may be inserted by means of the insertion mechanism into a connector held by the connector holding means.
2. A device according to claim 1, wherein the end of the fiber is inserted into the connector in a predetermined orientation with respect to the connector.
3. A device according to claim 1, wherein the cleaving mechanism is arranged to cleave the optical fiber such that an end face of the end of the fiber so produced is oriented at a non-perpendicular angle with respect to the longitudinal axis of the fiber.
4. A device according to claim 3, wherein the insertion of the fiber into the connector by the insertion mechanism is such that the orientation of the non-perpendicular end face of the fiber with respect to the connector is predetermined.
5. A device according to claim 1, comprising a main body within which the cleaving mechanism is located.
6. A device according to claim 5, wherein the cleaving mechanism may be accessed by an optical fiber to be cleaved, only by insertion of the fiber through an aperture in the main body.
7. A device according to claim 1, wherein the insertion mechanism manipulates the fiber in order to insert the end of the fiber in the connector.

8. A device according to claim 7, wherein the insertion mechanism moves the cleaved end of the fiber with respect to the connector holder in a direction along a longitudinal axis of the fiber, which axis extends from the cleaved end of the fiber, in order to insert the fiber in a connector.
9. A device according to claim 8, wherein the axial movement of the fiber by the insertion mechanism comprises movement of the insertion mechanism to a locking position at which the fiber is fully inserted into the connector.
10. A device according to claim 9, wherein, when the insertion mechanism is in its locking position, the insertion mechanism resists removal of the fiber out of the connector, and resilient means of the insertion mechanism applies an insertion force to the fiber.
11. A device according to claim 1, wherein the insertion mechanism comprises a curved support on which the fiber is retained when the end of the fiber is inserted into the connector.
12. A device according to claim 11, wherein the curved support comprises an at least partial disc, on the circumference of which the fiber is retained.
13. A device according to claim 1, wherein the insertion mechanism clamps the fiber during the cleavage of the fiber.
14. A device according to claim 13, wherein the clamping of the fiber by the insertion mechanism is maintained subsequent to the cleavage of the fiber, until the fiber has been inserted into the connector.
15. A device according to claim 13, wherein the curved support comprises an at least partial disc, on the circumference of which the fiber is retained, and wherein the clamping and retention of the fiber on the support is achieved by rotating a pivoted fiber lock member of the at least partial disc of the support around at least part of the circumference thereof.

16. A device according to claim 15, wherein the rotation of the fiber lock member traps the fiber in a groove in the circumference of the support, the groove decreasing in depth along the circumference in the direction of rotation of the fiber lock member.

17. A device according to claim 7, wherein the insertion mechanism rotates the end of the fiber between a cleavage orientation and an insertion orientation with respect to the connector holder, in order to insert the fiber into the connector.

18. A device according to claim 17, wherein the rotation of the fiber by the insertion mechanism is through substantially 90 degrees.

19. A device according to claim 1, wherein the connector holding means comprises a cradle for a connector, which is movable with respect to the remainder of the device.

20. A device according to claim 19, further comprising a main body within which the cleaving mechanism is located, wherein the cradle is movable across the main body of the device between two opposite insertion positions, and wherein optical fibers may be inserted into respective opposite ends of a connector held by the cradle to form an optical fiber splice in the connector.

21. A device according to claim 20, wherein the insertion mechanism rotates the end of the fiber between a cleavage orientation and an insertion orientation with respect to the connector holder, in order to insert the fiber into the connector, and wherein there are two opposite insertion orientations of the insertion mechanism, the insertion mechanism being situated on opposite sides of its cleavage orientation, the opposite insertion orientations being for inserting fibers into a connector located respectively in the two opposite insertion positions of the cradle.

22. A device according to claim 3, wherein the cleaving mechanism is arranged to produce the non-perpendicular end face of the fiber such that the end face lies in a plane substantially perpendicular to a direction of insertion of the fiber into a connector held by the connector holding means.

23. A device according to claim 22, wherein the insertion mechanism rotates the end of the fiber between a cleavage orientation and an insertion orientation with respect to the connector holder, in order to insert the fiber into the connector, and wherein there are two opposite insertion orientations of the insertion mechanism, the insertion mechanism is situated on opposite sides of its cleavage orientation, the opposite insertion orientations being for inserting fibers into a connector located respectively in the two opposite insertion positions of the cradle, and the non-perpendicular end faces of two fibers spliced in the connector are 180 degrees opposed, around a rotational axis comprising the longitudinal axis of the fibers.
24. A device according to claim 1, further comprising one or more wedge members that are movable with respect to the connector holding means to open a connector held by the holding means, to enable the insertion of an optical fiber therein.
25. A device according to claim 24, further comprising a main body within which the cleaving mechanism is located, wherein the cradle is movable across the main body of the device between two opposite insertion positions, and wherein optical fibers may be inserted into respective opposite ends of a connector held by the cradle to form an optical fiber splice in the connector, and further comprising one or more wedge members located adjacent to each insertion position of the cradle, arranged to open respective parts only of a connector held by the cradle, to allow the insertion of an optical fiber into respective opposite ends of the connector.
26. A device according to claim 1, further comprising at least one handle which, when moved to an actuation position causes the cleaving mechanism to cleave an optical fiber.
27. A device according to claim 1, comprising a hand operated tool.
28. The use of a device according to claim 1, to install an optical fiber in an optical fiber connector.
29. The use according to claim 28, wherein the connector comprises at least two parts between which the optical fiber is inserted by the insertion mechanism of the device.

30. The use according to claim 29, further comprising one or more wedge members that are movable with respect to the connector holding means to open a connector held by the holding means, to enable the insertion of an optical fiber therein, wherein the parts of the connector are opened by the wedge member(s), thereby enabling the insertion of the optical fiber into the connector.

31. The use according to claim 30, wherein the connector, and the wedge members and the connector holding means of the device, are arranged such that the wedge members open only a portion of the connector at a time, to install an optical fiber in that portion of the connector while leaving another portion of the connector unopened.